

63rd Street “Hot Spot”
Miami Beach, Miami-Dade County, Florida
National Shoreline Erosion Control Development and Demonstration Program
(Section 227)

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The National Shoreline Erosion Control Development and Demonstration Program, commonly referred to as Section 227 (of the U.S. Water Resources and Development Act of 1996), is an applied research effort by the U.S. Army Corps of Engineers. Administered by the U.S. Army Engineer Research and Development Center (ERDC), the focus of Section 227 is on evaluation of innovative or nontraditional approaches to help prevent coastal erosion. A variety of shore protection devices and methods are being constructed, administered, and evaluated at a number of sites throughout the United States with diverse shoreline morphologies. The program requires a minimum of two project sites on the Atlantic coast, two on the Pacific coast, two on the Great Lakes, and one on the Gulf of Mexico. These shore protection structures must have scientific support for projected performance and must not affect the aesthetic appeal of the area. Both patented devices and nonproprietary methods are permissible.

The 63rd Street Miami Beach project site extends along the Atlantic coast of Florida in Miami-Dade County for approximately 762 m (2,500 ft). The site can be described as an erosional hot spot within the Federally authorized Dade County Beach Erosion Control and Hurricane Protection Project (BEC&HP). The authorized BEC&HP is designed to provide a specific level of storm damage reduction and recreation benefit through the establishment and maintenance of a beach nourishment design template. This design template must provide for the life of the project in order for realization of the return on Federal and non-Federal investments. Monitoring of the BEC&HP indicates

that shoreline recession at the demonstration project site exceeds the rates experienced on adjacent shorelines.

A design for the 63rd Street site has been selected using Reef Ball™ units as an offshore reef breakwater. Reef Balls™ are hollow concrete hemispheres designed for marine habitat enhancement. Placed in parallel rows as an offshore breakwater, Reef Balls™ will reduce the wave energy reaching the beach both by physically blocking the incident waves and by generating turbulence through the interstices in and around the concrete units. Physical model experiments conducted at ERDC have measured the effectiveness of different arrangements of Reef Balls™ at dissipating the incident wave energy. An optimum pattern, with modifications requested by state and federal environmental agencies, has been selected. The Reef Balls™ will be incorporated into an articulated concrete mattress to minimize settlement into the sand. In addition to reducing the erosion rate in the 63rd St. “Hotspot,” the reef breakwater will provide improved habitat for fishes and invertebrates, and add recreational benefits as a snorkeling trail.

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Biographical Sketches:

Dr. Ward received his BS in Civil Engineering in 1983 and Master of Ocean Engineering in 1992, both from Oregon State University, and PhD in Ocean Engineering from Texas A&M in 1998. He is currently employed as a coastal engineer by the US Army Corps of Engineers at the Engineering Research and Development Center's Coastal and Hydraulics Laboratory in Vicksburg, Mississippi.

Mr. White received his BS in Civil Engineering in 1996 from Florida A&M University in Tallahassee, Florida. He is currently employed by the US Army Corps of Engineers, Jacksonville District, as a Planning Technical Leader in the Coastal-Navigation Section of Planning Division. Mr. White has worked on a wide variety of Feasibility and Reconnaissance reports in navigation, coastal, and ecosystem restoration arenas for the State of Florida, Puerto Rico and the Virgin Islands.